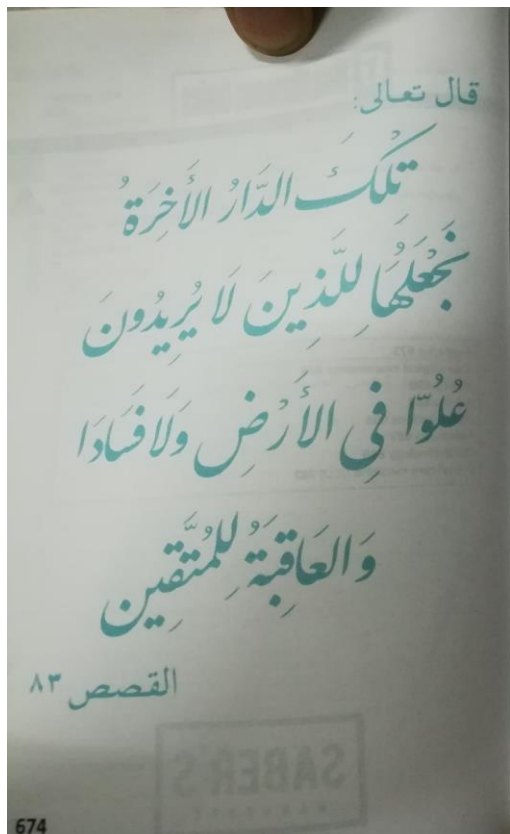


17 Miscellaneous topics

Headache **675**
Neurological examination **679**
NSAIDs **690**
Anemia **693**
Immunizations **696**
Anesthesia **697**
Ophthalmology **699**
Critical care medicine (ICU) **702**

VISIT...

LANZAROTE
Caliente.COM



674

HEADACHE D&T

CAUSES

A. Common:

1. Tension headache (the most common cause).
2. Associated with URTI.
3. Migraine.
4. Depression.

B. Rare:

1. Tumor.
2. Subarachnoid hemorrhage.
3. Subdural hemorrhage.
4. Meningitis.
5. Giant cell arteritis.

Chronic headache:

1. Tension headache:

- Due to over stress.
- Moderately severe.
- Described as **tight band of pressure**.
- Bilateral non pulsatile headache ± scalp ms tenderness but without vomiting or sensitivity to head movements.

• Management:

1. Stress relief.
2. Massage.
3. Analgesic: R/Brufen 400 1x3

2. Medication overuse:

- As paracetamol, opiates, ergots.
- Advise the patient to use over the counter analgesia no more than 6 months.

3. Raised intracranial pressure:

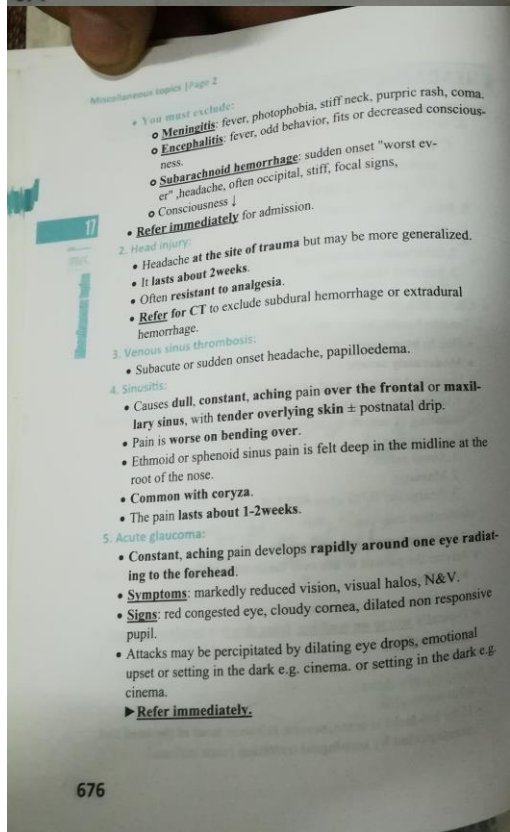
- Typically **worse on walking, lying down or bending forward or with coughing**.
- Refer.

Acute single dose:

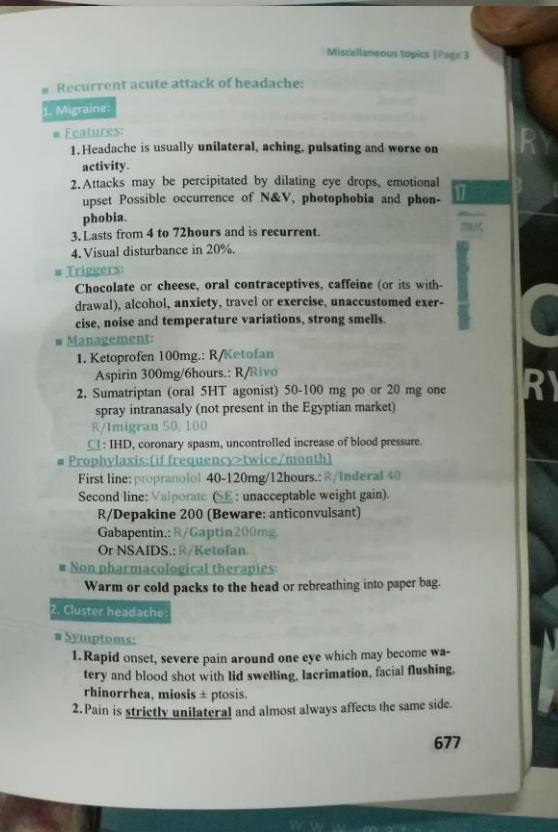
1. With meningitis:

- If the headache is acute, severe, felt over most of the head and accompanied by meningeal irritation (neck stiffness).

675



676



677

Miscellaneous topics | Page 4

3. It lasts 15-60 minutes, occurs once or twice a day and is often nocturnal.

4. Clusters last 4-12 weeks and are followed by pain free periods of months or even 1-2 years before the next cluster.

5. Sometimes it is chronic rather episodic.

Treatments

- 100% oxygen for 15 minutes via non-rebreathable mask (CI in COPD).
- Sumatriptan 50 mg at the attacks onset.
- Amitriptyline 10-25 mg at night.

Trigeminal neuralgia

- 1. Paroxysms of intense, stabbing pain, lasting seconds in the trigeminal nerve distribution.
- 2. It is unilateral, typically affecting mandible or maxillary divisions.
- 3. The face screws up with pain.

Treatments

- 1. Carbamazepine (start at 100mg 12 hours po, max 400mg/6 hours).
- 2. Topiramate 200 (cryst), 200 (tab).
- Or Gabapentin: 300mg on day 1, 300mg 12 hours on day 2, 300mg on day 3. Then increase according to response in steps of 100mg/8 hours, max. 600mg/8 hours.
- 3. Capsaicin 100.
- 4. Neurotoxin 300.
- 5. Capsaicin 400.

Distribution of the sensory branches of the trigeminal nerve
 V₁ = ophthalmic, V₂ = maxillary, V₃ = mandibular. Note that V₁ controls the cornea and V₂ does not include the angle of the jaw. Reference of this figure: Oxford handbook of clinical examination (7th ed. p. 21).



678

4. Recurrent meningitis.
 Suspect if the fever/meningism with every headache.

Neurological examination

A. Higher mental system:

1. Conscious level (Glasgow coma score).
 2. Cognitive state.
- Abbreviated mental status score:**
1. Tell patient an address to recall at the end.
 2. Age.
 3. Time (to nearest hour).
 4. Recognize 2 people (e.g. doctor & nurse).
 5. What year is it?
 6. Date of birth.
 7. Dates of the 6th October war (for example).
 8. Name of present president.
 9. Name of hospital.
 10. Count backwards from 20 to 1.
- Result:** a score of <5 suggests **poor cognition**, acute (delirium), or chronic (dementia).

B. Speech:

- Is there **alteration in voice sound** (dysphonia e.g. in laryngitis recurrent laryngeal nerve palsy, or vocal cord tumour).
- **Dysphasia?**
- **Impairment of language caused by brain damage.**
- **Assessment:**
 1. If speech is fluent, grammatical and meaningful → dysphasia is unlikely.
 2. **Comprehension:** can the patient follow one, two and several step commands? (Touch your ear, stand up then close the door).
 3. **Naming:** can he name common and uncommon things (e.g. parts of a watch)?
 4. **Repetition:** can the patient repeat a sentence?
 5. **Reading and writing:** normal? They are usually affected like speech in dysphasia.

679

Miscellaneous topics | Page 6

Dysarthria:

- It is **difficulty with articulation** due to in coordination or weakness of the musculature of speech.
- Language is normal.
- **Assessment:** ask to repeat "British constitution or baby hippopotamus".

Dysphonia: difficulty with **speech volume** due to weakness of respiratory ms. (Mythenia gravis, Guillain-Barré syndrome).

Dyspraxia: **poor performance of complex movements** despite ability to do each individual component.

It may be:

1. **Dressing dyspraxia:** the patient is unsure of the orientation of clothes on his body.
2. **Constructional dyspraxia:** difficulty in assembling objects or drawing a 5 point star.
3. **Gait dyspraxia.**

C. Motor system: (upper or lower limb)

- It is essential to discriminate whether weakness is upper "UMN" or lower "LMN" motor neuron.

1. UMN lesions

- Caused by damage to motor pathway anywhere from motor nerve cells in the frontal cortex to the anterior horn cells "AHC" in the cord.

Characteristics

1. Weakness of **extensors of the arm** (Shoulder abduction, elbow, wrist and finger extension) and also the **small mss of the hand**.
2. Weakness of the **flexors of the lower limb** (hip flexion, ankle dorsiflexion and evertors).
3. Little **ms wasting** and loss of skilled fine finger movements.
4. **Spasticity** (increased tone): in **stronger muscles** such as arm flexors and leg extensors.
5. It manifests as **resistance to passive movements** that can suddenly be overcome (**clasp-knife feel**).
6. **Hyper-reflexia**
 - **Positive Babinski sign** (planters are up going).
 - **Clonus** (rapidly elicited by rapidly dorsiflexing the foot: ≤ 3 rhythmic, downward beats of the foot are normal but if more it suggests an UMN lesion).

N.B.: UMN weakness affects **ms groups**, not individual muscles.

680

Miscellaneous topics | Page 7

2. LMN lesion:

- Caused by damage anywhere from "AHC" in the cord nerve roots, plexi or peripheral nerves.
- The distribution of weakness corresponds to these muscles supplied by the involved cord segment, nerve root, part of plexus or peripheral nerve.
- The muscles show **wasting ± spontaneous involuntary twitching (fasciculation)** and feel **soft and flabby** providing little resistance to passive stretch (**hypotonia/flaccidity**).
- **Reflexes are reduced or absent**, the plantars remain flexed.

Inspect:

- For **posture abnormality** (e.g. pyramidal posture of UMN lesions) or involuntary movement, wasting or fasciculation (ms twitching, not moving the limb)?

Drift:

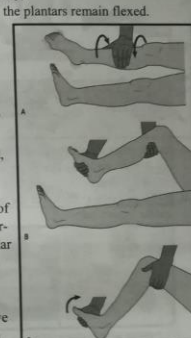
- Patient sitting, arms outstretched, eyes closed.
- Do arms drift downwards?
- Unequal drift is a valuable sign of subtle focal motor deficits, occurring in UMN weakness, cerebellar disease and loss of proprioception.

Tone:

- Look for **hypotonia** (flabby) or **spasticity** (pressure fails to move a joint until it gives away, like a clasp knife), rigidity (lead pipe), rigidity plus tremor (**cog wheeling**).
- **Is there clonus** (rhythmic ms beats on sudden stretching: as an example (gastrocnemius on ankle dorsiflexion) at wrist, patella or ankle)?

Power:

- Oppose each movement.



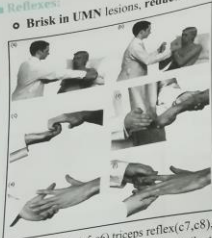
Testing for tone.
 (A) Check the leg and foot.
 (B) Check the full range of movement at the knee.
 (C) Test for ankle clonus.
 Reference of this figure: Oxford handbook of clinical examination (7th ed. p. 327).

681

- Ascertain the distribution of any weakness - which movements/nerve roots are affected?

Reflexes:

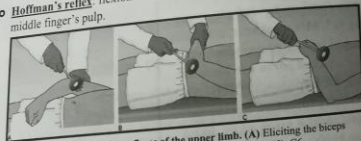
- Brisk in UMN lesions, reduced / absent in LMN lesion.



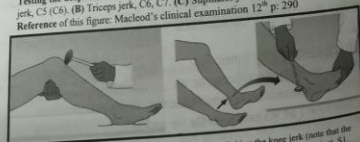
Testing power in the upper limbs.
(a) Shoulder movements, (b) Elbow movements, (c) Finger flexion, (d) Finger extension, (e) Finger abduction, (f) Finger adduction.
Reference of this figure: Oxford handbook of clinical examination 1st ed.: p 327

- Biceps reflex (C5, C6), triceps reflex (C7, C8), supinator reflex (C5, C6), knee reflex (L3, 4 + L2), ankle (S1, S2), abdominals (lost in UMN lesions).

- Hoffman's reflex: flexion of the thumb and index finger on flicking the middle finger's pulp.



Testing the deep tendon reflexes of the upper limbs. (A) Eliciting the biceps jerk, C5 (C6). (B) Triceps jerk, C6, C7. (C) Supinator jerk (C5), C6.
Reference of this figure: Macleod's clinical examination 12th ed.: p 290



Testing the deep tendon reflexes of the lower limbs. (A) Eliciting the knee jerk (note that the legs must not be in contact with each other), L3, L4. (B) Ankle jerk of recumbent patient, S1.
Reference of this figure: Macleod's clinical examination 12th ed.: p 290

682



Eliciting the plantar reflex.
Reference of this figure: Macleod's clinical examination 12th ed.: p 292



Reference of this figure: Oxford handbook of clinical examination 1st ed.: p 333

Co-ordination:

- Finger-nose (touch nose with a finger).



Finger-nose test. (A) Ask the patient to touch the tip of her nose and then your finger. (B) Move your finger from one position to another, towards and away from the patient, as well as from side to side.
Reference of this figure: Macleod's clinical examination 12th ed.: p 294

- Rapid alternating movements (rapidly pronate and supinate one hand on the other hand, clumsiness in this "dysidiadochokinesis" occurs in cerebellar lesions).



Testing rapidly alternating movements. This can be rather hard to describe to a patient. A brief demonstration is usually required.
Reference of this figure: Oxford handbook of clinical examination 1st ed.: p 345

- Is there dyspraxia?
- Rub heel up and down chin

683



Performing the heel-to-toe test with the right leg.
Reference of this figure: Macleod's clinical examination 12th ed.: p 295

- Ask the patient to walk: normally, heel-to-toe, on heels then on toes.
- Observe standing feet together + squatting, if balance is worse on shutting the eyes then Romberg's test is positive.
- Implying abnormal joint position sense. If he can't perform this even with eyes open, this may be cerebellar ataxia but it is not Romberg's positive.

D. Sensation:

- Dorsal column
 - Light touch (cotton wool).
 - Vibration (128 Hz tuning fork).
 - Joint position sense (proprioception).

Somatosensory:

- Pain (pin-prick) and temperature.
- Testing temperature sensation is not usually required but can be performed with test tubes filled with hot and cold water.
- Determine if there is any sensory loss below the spinal cord level such as (cord compression) or in a glove and stocking distribution such as (peripheral neuropathy)?

(The drawn picture of dermatomes: page 709)

Nerve root	Muscle	Test by asking the patient to:
C3, 4	Trapezius	Shrug shoulder (via accessory nerve).
C5, 6, 7	Serratus anterior	Push arm forward against resistance; look for winging of the scapula, if weak.
C5, 6	Pectoralis major (p major) clavicular head	Adduct arm from above horizontal, and push it forward.
C6, 7, 8	P major sternocostal head	Adduct arm below horizontal.

684

C5, 6	Supraspinatus	Abduct arm the first 15°.
C5, 6	Infraspinatus	Externally rotate arm, elbow at side.
C6, 7, 8	Latissimus dorsi	Adduct arm from horizontal position.
C5, 6	Biceps	Flex supinated forearm.
C5, 6	Deltoid	Abduct arm between 15° and 90°.
Radial nerve		
C6, 7, 8	Triceps	Extend elbow against resistance.
C5, 6	Brachioradialis	Flex elbow with forearm half way between pronation and supination.
C5, 6	Extensor carpi radialis longus	Extend wrist to radial side with fingers extended.
C6, 7	Supinator	Arm by side, resist hand pronation.
C7, 8	Extensor digitorum	Keep fingers extended at MCP joint.
C7, 8	Extensor carpi ulnaris	Extend wrist to ulnar side.
C7, 8	Abductor pollicis longus	Abduct thumb at 90° to palm.
C7, 8	Extensor pollicis brevis	Extend thumb at MCP joint.
C7, 8	Extensor pollicis longus	Resist thumb flexion at IP joint.
Median nerve		
C6, 7	Pronator teres	Keep arm pronated against resistance.
C6, 7	Flexor carpi radialis	Flex wrist towards radial side.
C7, 8, T1	Flexor digitorum superficialis	Resist extension at PIP joint (with proximal phalanx fixed by the examiner).
C7, 8	Flexor digitorum profundus I & II	Resist extension at index DIP joint of index finger.
C7, 8, T1	Flexor pollicis longus	Resist thumb extension at inter-phalangeal joint (fix proximal phalanx).
C8, T1	Abductor pollicis brevis	Abduct thumb (nail at 90° to palm).
C8, T1	Opponens pollicis	Thumb touches base of 5 th finger-tip (nail parallel to palm).
C8, T1	1 st lumbrical/Interosseus (median & ulnar nerves)	Extend PIP joint against resistance with MCP joint held hyperextended.

685

Ulnar nerve

C7, T1	Flexor carpi ulnaris
C7, C8	Flexor digitorum profundus III and IV
C8, T1	Dorsal interossei
C8, T1	Palmar interossei
C8, T1	Adductor pollicis
C8, T1	Abductor digiti minimi
C8, T1	Flexor digiti minimi

Flex wrist to ulnar side, observe tendon.
Resist extension of distal phalanx of 5th finger while you fix its middle phalanx.
Finger abduction: cannot cross the middle over the index finger (tests index finger adduction too).
Finger adduction: pull apart a sheet of paper held under finger (tests index finger adduction too).
Finger adduction: pull apart a sheet of paper held between middle and ring finger (2nd joints of both hands; the paper moves on the weaker side.) (discrete)
Abduct thumb (nail at 90° to palm).
Abduct little finger.
Flex the little finger at MCP joint.

Activity to test

Lower limb

Nerve root	Muscle	Activity to test
------------	--------	------------------

L4, S1	Gluteus medius & minimus (superior gluteal nerve)	Internal rotation at hip, hip abduction.
L5, S1, 2	Gluteus maximus (inferior gluteal nerve)	Extension at hip (lie prone).
L2, 3, 4	Adductor (obturator nerve)	Adduct leg against resistance.

Sacrocaudal nerve

L1, 2, 3	Iliopsoas (also supplied via L1, 3, & 5 spinal nerves)	Flex hip against resistance with knee flexed and lower leg supported; patient lies on back.
L2, 3, 4	Quadriceps femoris	Extend at the knee against resistance. Start with the knee flexed.

Obturator nerve

L2, 3, 4	Hip adductors	Adduct the leg against resistance.
----------	---------------	------------------------------------

Inferior gluteal nerve

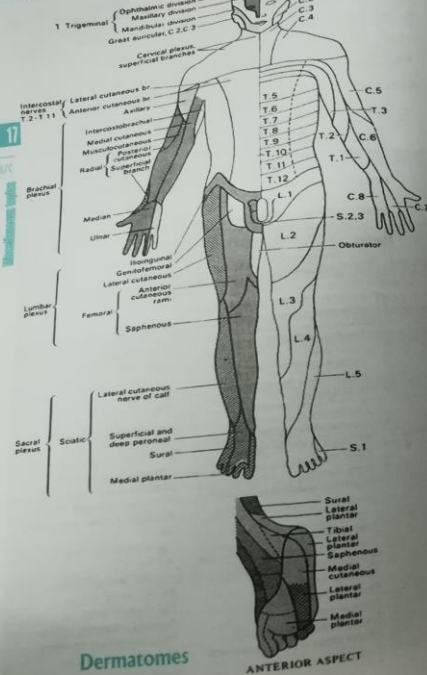
L5, S1, S2	Gluteus maximus	Hip extension (bury heel into the couch) with knee in extension.
------------	-----------------	--

Superficial peroneal nerve

L4, S1	Gluteus medius & minimus	Abduction and internal hip rotation with leg flexed at hip and knee.
--------	--------------------------	--

Sciatic (and common peroneal) and sciatic (and tibial) nerves

*L4, 5	Tibialis anterior	Dorsiflex ankle.
*L5, S1	Extensor digitorum longus	Dorsiflex toes against resistance.
*L5, S1	Extensor hallucis longus	Dorsiflex hallux against resistance.



Dermatomes

ANTERIOR ASPECT

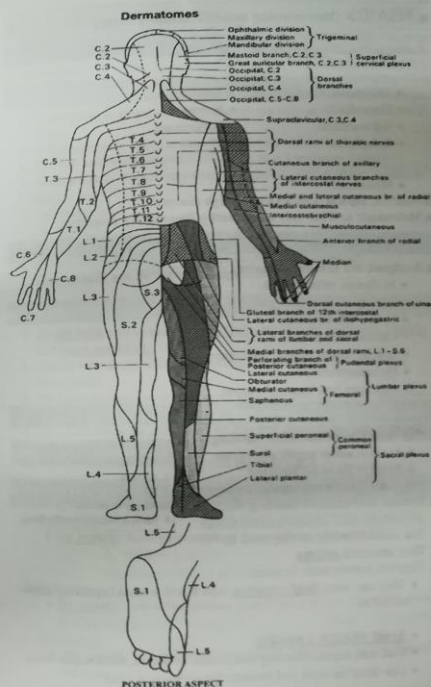
*L5, S1	Peroneus longus & brevis	Evert foot against resistance.
*L5, S1	Extensor digitorum brevis	Dorsiflex proximal phalanges of toes.
**L5, S1, 2	Hamstrings	Flex the knee against resistance.
**L4, 5	Tibialis posterior	Invert the plantar-flexed foot.
**S1, 2	Gastrocnemius	Plantar-flex ankle or stand on tiptoe.
**L5, S1, 2	Flexor digitorum longus	Flex terminal joints of the toes.
**S1, 2	Small muscles of foot	Make the sole of the foot into a cup.

Quick screening test for muscle power

Shoulder	Abduction	C5	Hip	Flexion	L1-L2
	Adduction	C5-C7		Adduction	L2-3
Elbow	Flexion	C5-C6	Knee	Extension	L5-S1
	Extension	C7		Flexion	L5-S1
Wrist	Flexion	C7-8	Ankle	Extension	L3-L4
	Extension	C7		Dorsiflexion	L4
Fingers	Flexion	C8	Toe	Eversion	L5-S1
	Extension	C7		Plantarflexion	S1-S2
	Abduction	T1		Big toe exten-	L5

SUMMARY OF ALL 12 CRANIAL NERVES

Nerve	Examination	Abnormalities/Symptoms
I	Sense of smell, each nostril	Anosmia/parosmia
II	Visual acuity	Partial sight/blindness
	Visual fields	Scotoma, hemianopia
	Pupil size and shape	Anisocoria
	Pupil light reflex	Impaired or lost
	Funduscopy	Optic disc and retinal changes
III	Accommodation reflex	Impaired or lost
III, IV and VI	Eye position and movements	Strabismus, diplopia, nystagmus
V	Facial sensation	Impaired, distorted or lost
	Corneal reflex	Impaired or lost
	Weakness of chewing movements	Weakness of chewing movements
	Weakness of mastication	Increased in upper motor neurone lesions
	Jaw jerk	Facial weakness
VII	Muscles of facial expression	Facial weakness
VIII	Taste over anterior 2/3 of the tongue	Ageusia
	Whisper and tuning fork tests	Impaired hearing/deafness
	Vestibular tests	Nystagmus and vertigo
IX	Pharyngeal sensation	Not routinely tested
X	Palate movements	Impaired unilaterally or bilaterally
XI	Trapezius and sternomastoid	Weakness of neck movement
XII	Tongue appearance and movement	Dysarthria and chewing/swallowing problems



POSTERIOR ASPECT

■ NSAIDs (Non-steroidal anti-inflammatory drugs)

■ Members:

- Non-selective
 - Diclofenac
 - Ibuprofen
 - Indomethacin
 - Ketoprofen
- Ketorolac
- Naproxen
- Lornoxicam

■ Relatively Cox-2 selective

- Meloxicam
- Note that **aspirin** is an NSAID at high dosages.
- **Mefenamic acid** has only minor anti-inflammatory properties.

■ Uses:

- Analgesic and anti-inflammatory drugs specially:

- In chronic inflammation.
- Rheumatoid arthritis.
- Severe osteoarthritis.
- Chronic back pain.
- In acute injury with inflammation.
- Dysmenorrhea.
- Pain from lytic bone metastases.

■ Side effects, precautions and CI:

1. Can cause Gastro-intestinal bleeding:
 - Avoid in active peptic ulceration
 - Avoid in Hx of GI bleeding
 - Avoid in renal and hepatic insufficiency
2. Because they cause GI bleeding, **do not give them with anticoagulant drugs** like warfarin unless accompanied by PPI.
3. They can cause **asthma**.
4. They can worsen renal function.
 - They can cause **fluid retention**, which will worsen hepatic or cardiac failure.
5. **Pregnant women:**
 - **Avoid NSAIDs if possible.**
 - Risk intra-uterine bleeding and closure of ductus arteriosus in utero
 - Can delay the onset and increase the duration of labor.

Remember CI

1. Asthma
2. PU
3. Allergy to aspirin
4. Renal & hepatic insufficiency.

6. Can be nephrotoxic.
7. **Mefenamic acid** is effective for the treatment of dysmenorrhea and menorrhagia. It can cause **haemolytic anaemia** and **severe diarrhea** in overdose.

■ Effectiveness & advice:

1. When given in single dose, these drugs are only as effective as Paracetamol.
2. A **full analgesic effect** is usually achieved **within 1 week**.
3. The **full anti-inflammatory effect** can take **3 weeks** to develop.
4. Many patients require long-term treatment. Consider gastro protection with:
 - Misoprostol
 - A PPI
5. Selective Cox-2 inhibitors have a lower risk of gastro-intestinal hge.
6. Enteric-coated tablets may reduce the risk of GI bleeding.
7. They **should not be used as antiplatelet**.

■ Interactions:

1. **Avoid with anticoagulants:** **warfarin**, antiplatelet drugs; e.g. **aspirin** and **corticosteroids**.
2. Avoid with drugs which cause renal impairment (e.g. ciclosporin, tacrolimus)
3. NSAIDs antagonize the action of **diuretics** and can cause fluid retention.
4. NSAIDs block the actions of **ACEIs** and increase the risk of **hyperkalaemia**.
5. NSAIDs reduce the excursion of **methotrexate**.

■ Prescribing information:

1. **Ibuprofen**

- **By mouth:** Anti-inflammatory dose: 400mg t.d.s. or q.d.s
R/Brufen 400 1x3
Maximum daily dose 2.4g

2. **Naproxen**

- **By mouth:** anti-inflammatory dose 0.5-1 g in 1 or 2 divided doses
R/Naprosyn 250, 500mg 1x2

3. **Diclofenac**

- **By mouth:** anti-inflammatory dose 75-100mg/day in 2 or 3 divided doses

■ Diclofenac Na⁺:

- R/Voltaren 50 1x3, **Often, Rheumarene**.

■ Diclofenac K⁺

- R/Cataflam 50 1x2, R/Rapidos 50 1x2.

B. **By rectum** (supp.): 75-150 mg daily in divided doses

- R/Voltaren 50 supp. 1x2
- R/Dolphim 50 supp.

C. **By deep IM injection** into the gluteal muscle

- 75 may be given twice daily, for maximum of 2 days in severe pain.
- R/Voltaren 75. **Often amp.**
- **The test given by this route for prolonged periods, there is a risk of sterile abscess**

4. **Indomethacin:**

- **By mouth**
- Anti-inflammatory dose 50-200mg daily in divided doses.
R/Indocid 25, cap. 1x2, R/indomethacin 25, 50 1x2, 1x3, 1x4

5. **Celecoxib:**

- A. **Osteoarthritis**
 - **By mouth**
 - 200mg daily in 1 or 2 divided doses, may be increased to 200mg bd.

B. **Rheumatoid arthritis**

- **By mouth**
- 200-400mg daily in 2 divided doses.
R/Celebrex 100 cap.

C. **Others:**

- **Naproxen**
R/Naprosyn tab 250, 500 1x2
- **Lornoxicam**
R/Xefo 4, 8 tab 1x2, R/Xefo 8 vial.
- **Meloxicam**
R/Mobic 7.5, 15 1x1, R/Mobic 15 amp.
R/Anticox II 7.5, 15 1x1

References:

1. Oxford-drugs: p. 658-663

■ ANAEMIA DgT

■ Definition:

Defined as **low hemoglobin concentration** and may be due to a low red cell mass or increased plasma volume as in pregnancy.

■ Diagnose:

- **History:** ask about:

1. **Bleeding:**

- **Heavy periods** (a common cause of iron deficiency anaemia).
- **Gastrointestinal bleeding** (rectal bleeding is the other common cause).

2. **Diet:**

- The elderly often take a **diet low in iron**.
- A **past hx of iron deficiency**.

3. **Symptoms of anaemia:**

- **Fatigue, tiredness, dyspnea, faintness, palpitations, headache, tinnitus, anorexia and angina** if there is pre-existing coronary artery disease.

4. **Symptoms occasionally accompanying anaemias:**

- **Bruising and infections** suggest aplastic anaemia.
- **Parasthesia of the feet** can occur in pernicious anaemia.
- Chronic disease can cause anaemia such as: renal failure, IBD and rheumatoid arthritis, cancer after causes anaemia.

■ Signs:

- May be **pallor** (as conjunctivitis: not reliable sign).
- In severe anaemia (Hb < 8 g/dl) there may be sign of a **hyperdynamic circulation** (as tachycardia, flow murmurs and cardiac enlargement later: HF) here rapid blood transfusion may be fatal.

■ Investigation:

1. **CBC:**

- HB less than:
 - 12.5g/dl for men.
 - 11.5g/dl for women.

2. **Iron deficiency anaemia** *MC ✓*
- Is characterized by a **low mean cell volume** (<76 fl) and a **low mean cell hemoglobin concentration** (<30 g/dl) and should be confirmed by checking for a low serum iron (<15 mmol/l in men and <14 mmol/l in women).
3. **Transferrin**
- A high transferrin (>400 mg/dl) supports the diagnosis of iron deficiency anaemia.
 - A low transferrin (<200 mg/dl) suggests the anaemia of chronic disease.

Types of anaemia
The first step in diagnosis is to look at the mean cell volume (mcv is $76-96$ femtolitres, 10^{-15} l).

1. Low MCV (microcytic anaemia):

- Iron deficiency anaemia.
- Thalassemia (suspect if MCV is "too low" for the level of anaemia and the red cell count is raised).
- Sideroblastic anaemia.

2. Normal MCV (normocytic anaemia):

- Acute blood loss.
- Anaemia of chronic disease or decrease MCV.
- Bone marrow failure.
- Renal failure.
- Hypothyroidism or increase MCV.
- Haemodialysis or increase MCV.
- Pregnancy.

N.B. we decrease or platelet decrease → suspect marrow failure.

3. High MCV (macrocytic anaemia):

- B12 or folate deficiency.
- Alcohol excess or liver disease.
- Reticulocytosis (e.g. with haemolysis).
- Cytotoxics (e.g. hydroxycarbamide).
- Hypothyroidism.

3. B12 deficiency anaemia (macrocytic anaemia):

- Vitamin B12 is found in meat and dairy products, but not in plants.
- Mainly due to pernicious anaemia (atrophic gastritis causing intrinsic factor deficiency).
- Treatment** (of pernicious anaemia)
Replenish stores with hydroxycobalamin (B12) 1 mg IM alternate days for 2 weeks.
R/Depovit amp. حبة غشال يوم بعد يوم لمدة السبوعين

References:
1. OHCN page 310, 312, 318, 320.
2. GP page 258, 260.

Routine childhood immunizations

Adult vaccines:

Adults should receive the following vaccines:

- Non pregnant women who are sero-negative for rubella: MMR
- Previously immunized individuals: polio, tetanus, diphtheria
- Individuals in high risk groups: hepatitis B, hepatitis A, influenza, pneumococcal vaccine.

Live vaccines:

They include:

- Rubella
- Measles
- Mumps
- Oral typhoid
- BCG

Live vaccines should not be given to:

- Pregnant women (may be given if there is a significant risk of exposure)
- The immuno-compromised, e.g. treatment with high dose corticosteroids (prednisolone 40 mg/day for 1 week or more in adults 2 mg/kg per day in children) within the last 3 months, malignancy of the reticulo-endothelial system, treatment with radiotherapy.
- HIV positive patients may be given most live vaccines**, but should not be given BCG or yellow fever

4. Haemolytic anaemia:

- May be normocytic or macrocytic.
- Suspect if there is a **reticulocytosis** ($>2\%$ of RBCs or reticulocytic count $>100 \times 10^9/L$), mild macrocytosis, hepatoglobin decrease, bilirubin increase, urobilinogen increase.

Management:

1. Iron deficiency anaemia:

Mild anaemia (Hb >7 g/dl)

- Fe²⁺ 1.200 mg/day po

R/Ferose F t. (100mg) 2x1 (قرصين يومياً)

- SE:** Nausea, abdominal discomfort, diarrhea or constipation, black stool.
- Hemoglobin should rise by 1 gm/dl/week.
- Re-check CBC after 1 month.
- If oral t. are not tolerated or fail to correct the anaemia use iv iron

You may use R/Ferosac (vi يومياً) never give it IM

2. Diet (الكبد-الباذنجان-العسل الأسود-السيانج)

3. Treatment of menorrhagia, hookworm

Tip: Patients with severe anaemia (Hb <7 g/dl) who are symptomatic should be considered for blood transfusion in hospital.

2. Folate deficiency anaemia (macrocytic anaemia):

- Folate is found in green vegetables, nuts, yeasts and liver.
- Maternal folate deficiency may cause neural tube defects in the fetus.

Treatment:

Folic acid 5 mg/day po for 4 months

R/Folic acid t. 1x1

Attention: never give folate without B12 unless the patient is

known to have a normal B12 levels.

➤ Giving folate in B12 deficiency precipitates subacute degeneration of spinal cord and peripheral neuropathy.

- When 2 live vaccines are required, they should be given either simultaneously at different sites or with an interval of at least 3 weeks. If time constraints make this impossible, it is better to give them within 3 weeks of each other than to omit them.
- Immunoglobulin may interfere with the development of active immunity from live vaccines. Live vaccines should be therefore be given at least 3 weeks before or 3 months after immunoglobulins. If time constraints make this impossible, this advice may have to be ignored.

Passive immunization:

- Normal immunoglobulin is available for prophylaxis of measles and hepatitis.
- Specific immunoglobulins are available for tetanus, hepatitis B, rabies, and varicella zoster.

Anaesthesia

Types of anaesthesia

A. Regional as:

- Spinal (neuro-axial block)
- Peripheral nerve block
- Supraclavicular (block of brachial plexus)
- Ankle block
- Sciatic and femoral nerve block

B. General anaesthesia

A state which include:

Anesthesia

- Na thiopental (Intraval)
- Ketamine Hcl (Katalar)
- Propofol (Deprivan)

Amnesia

- Benzodiazepines
- Midazolam (Dormicum, Midathetic)
- Diazepam (Neuril)

Analgesia

- Morphine, Fentanyl, Pethidine

- **Muscle relaxation**
 - **Short acting:** Succinylcholine (succinyl choline: non competitive)
 - **Intermediate acting:**
 - Atrochium (competitive)
 - Vecuronium (Esmeron: competitive)
- **Attenuation of autonomic nervous system response to noxious stimuli.**

A. Induction of anaesthesia

1. Sedatives e.g. Benzodiazepines as Medazolam
2. Analgesic e.g. Opioid: fentanyl, morphine
3. Hypnotics
 - Barbiturate e.g. Na thiopental
 - Ketamine HCl
 - Propofol
4. Short acting ms relaxant e.g. succinyl choline

B. Maintenance of anaesthesia

- Inhalation anaesthesia e.g. Isoflurane, Sevoflurane, Halothane
- TIVA (total intravenous anaesthesia)

C. Recovery from anaesthesia

- Stop anaesthetic agent: each has different duration of action, at appropriate time and wait for patient arousal & beginning of spontaneous breathing
- When tidal volume & rate of spontaneous breathing are adequate you can give what is called (reversal) which is combined of neostigmine & atropine (which used to achieve complete reversal of I action of I neuromuscular blocker).

■ Ophthalmology

1. Discharging eye D4T

- Due to either **excessive tear production** or **inadequate tear drainage**.

• Excessive tear production:

Common causes:

- Wind.
- Dust.
- Ingrowing eye lashes.
- Corneal or tarsal foreign body.
- Hay fever.

• Impaired tear drainage:

Common causes:

- URTI.
- Ectropion.
- Entropion.
- Blocked tear duct.

■ Management:

1. For chronically sticky eye in a baby :

- Show the parents how to manage the lacrimal duct with gentle pressure from the index finger over the medial palpebral fold twice daily.
- Only use antibiotic drops if the eye is red.
- Regular **swabbing with moistened cotton wool** helps.
- 2. Eye lashes in the tear duct can be easily removed with fine forceps.
- 3. Refer patient with an ectropion, entropion or ingrowing eye lashes for corrective surgery.
- 4. **Avoid** antibiotic drops or ointment unless obvious conjunctivitis is present.

2. Eyelid problems

1. Stye D4T

- Very common.
- Styes are **infected eye lash roots** and produce a red, painful swelling at the lid margin.

■ Management:

- Advise regular **warm streaming**.
- Antibiotic eye drops.

R/Chloramphenicol eye drops 1x4

2. Chalazion (meibomian cyst)

- Less common than stye.
- Produce a red, uncomfortable eyelid swelling at a distance from the lid margin.
- **Management:**
 - For acute infection: advise **regular warm streaming**.
 - The cyst usually bursts through the conjunctival surface of the eyelid after a few days.
 - If the problem is recurrent or if the cyst remains, consider referral to an ophthalmologist for **incision and curettage**.

3. Blepharitis

- It is **chronic inflammation of the lid margin**.
- It gives the eyes a sore tired appearance with red lid margins.

■ Management:

- Advise the patient to **avoid rubbing the eyes and pay attention to cleaning the lid margins carefully with warm water**.
- Use a **baby lotion or diluted baby shampoo** to be wiped over the lid margins with a cotton wool bud.
- Treat exacerbation with a topical antibiotic
- R/Tobrex (antibiotic) 1x4
- Treat any associated seborrheic dermatitis.
- Most red eyes in general practice are **not painful**.
- The acute, painful, red eye usually needs urgent referral to ophthalmology.

3. Acute red eye D4T

■ Diagnosis:

- Assess the level of pain.
- Ask about **visual acuity**?
- Is there any **discharge**?
- Is there any **photophobia**?
- F.B?

■ Causes of painless red eye?

- Conjunctivitis
- Subconjunctival haemorrhage.

■ Causes of painful red eye?

1. Corneal abrasion
2. Herpes zoster infection
3. Arc eye/snow blindness
4. Corneal F.B
5. Episcleritis and scleritis
6. Acute glaucoma
7. Acute iritis
8. Acute keratitis

4. Conjunctivitis D4T

- It is the **most common eye condition** seen by GPs.
- It is commonly seen within URTI.

■ Diagnosis:

• History:

- Irritation.
- Grittiness.
- Dryness.
- Itching.
- Stinging or soreness.
- Followed by bloodshot eye, discharging green/yellow sticky pus which glues the eyelids together over night.

• Examination: look for:

- **Vasodilatation** of the conjunctiva.
- **Cobblestone oedema** of the conjunctiva, under the eyelids.
- Purulent discharge.

■ Management:

1. The eye should be kept clean.
2. Treat with topical antibiotics
3. If no response change to fucidic acid eye drops twice daily for a week.
4. If hay fever give antihistaminics
5. If no response refer

References:

1. GP: P 227-228.

Cyanosis

- Dusky blue skin (peripheral, e.g. of the fingers) or mucosae (central, e.g. of the tongue, representing 2.5 g/dl of Hb in its reduced form, hence it occurs more readily in polycythaemia than anaemia). **Causes:**
 1. Lung disease resulting in inadequate oxygen transfer (eg COPD, severe pneumonia) often correctable by increasing the inspired O₂.
 2. Shunting from pulmonary to systemic circulation (eg R to L shunting VSD, patent ductus arteriosus, transposition of the great arteries), cyanosis is not reversed by increasing inspired oxygen.
 3. Inadequate oxygen uptake (eg met., or sulf-haemoglobinemia), an inhaled foreign body, a pneumothorax or LVF?
- Acute cyanosis is a sign of impending emergency. Is there asthma, myxoedema, peripheral vascular disease?

Will occur in causes of central cyanosis, but may also be induced by changes in the peripheral and cutaneous vascular systems in patients with normal oxygen saturations. It occurs in the cold, in hypovolaemia, and in arterial disease, and is therefore not a specific sign.

Diarrhoea (see page 113)

Dyspepsia and indigestion (see page 105)

Dyspnoea (see page 45, 429)

Dysuria (see page 247)

Epigastric pain (see page 117, 605)

Faints (see page 431)

Facial pain

This can be neurological (eg trigeminal neuralgia) or from any other pain-sensitive structure in the head or neck. **Post-herpetic neuralgia.** This nasty burning-and-stabbing pain (in the ophthalmic division of V) all too often becomes chronic and intractable. Skin previously affected by zoster is exquisitely sensitive.

Non-neurological causes of facial pain

- Neck Cervical disc pathology
- Sinus Sinusitis, neoplasia
- Eye Glaucoma, iritis, eye strain
- Temporomandibular joint arthritis
- Teeth Caries; abscess; malocclusion
- Ear Otitis media; otitis externa
- Vascular Giant cell arteritis

N.B. When all causes are excluded, a group which is mostly young and female remains (atypical facial pain) who complain of unilateral pain deep in the face or at the angle of cheek and nose, which is constant, severe, and unresponsive to analgesia. Do not dismiss these as psychological: few most criteria for hysteria or depression. Do not expose these patients to the risks of destructive surgery: while many are prescribed antidepressants, some neurologists advocate no treatment.

Faecal incontinence

This is common in the elderly. Be sure to find out who does the washing: they may be under special stress. The cause may disappear if constipation is treated (overflow incontinence/diarrhoea). Do a PR. **Other GI causes:** rectal prolapse; sphincter laxity; severe piles.

Non-gastrointestinal causes of faecal incontinence

- Neurological Spinal cord compression, Parkinson's disease, stroke, epilepsy
- Endocrinological Diabetes mellitus (autonomic neuropathy), myxoedema
- Obstructive Damage to puborectalis (or nerve roots) at childbirth

N.B. Treatment is directed to the cause if possible. Avoid dehydration. Be sure to do a PR.

to exclude overflow incontinence. If all sensible measures fail, try the brake-and-accelerator approach: enemas to empty the rectum (e.g. twice weekly) and codeine phosphate e.g. 15mg/12h PO on non-enema days to constipate. This is not a cure, but makes the incontinence predictable.

Fatigue

This feeling is so common that it is a variant of normality. Only 1 in 400 episodes leads to a consultation with a doctor. Do not miss depression which often presents in this way. Even if the patient is depressed, a screening history and examination is important to rule out chronic disease. Tests should include FBC, ESR, U&E, plasma glucose, TFT + CXR. Arrange follow-up to see what develops, and to address any emotional problems that develop.

Fever and night sweats

While moderate night sweating is common in anxiety states, drenching sweats requiring several changes of night-clothes is a more ominous symptom associated with infection (eg TB), lymphoproliferative disease, or mesothelioma. Patterns of fever may be relevant. Rigors are uncontrolled, sometimes violent episodes of shivering which occur with some causes of fever (eg pyelonephritis, pneumonia).

Flatulence

400-1500 mL of gas are expelled PR per day, and if this, coupled with belching (eructation) and abdominal distension, seems excessive to the patient, he may complain of flatulence. Eructation may occur in those with hiatus hernia, but most patients complaining of flatulence have no GI disease. The most likely cause is air-swallowing (aerophagy).

Frequency (urinary) (see page 246)

Haematemesis (see page 116, 624)

Haemoptysis (see page 59)

Halitosis

(Fetor oris, oral malodour) results from gingivitis (Vincent's angina), metabolic activity of bacteria in plaque, or of saliva-yielding food putrefaction. Contributory factors: smoking, alcohol, drugs (disulfiram, isosorbide); lung disease. Dehiscence halitosis is quite common. Treatment: Try to eliminate anaerobes: Stand nearer the toothbrush. Dental floss, 0.2% aqueous chlorhexidine gluconate.

Headache

(see page 697)

Hearburn (see page 105)

Hepatomegaly

Causes: Hepatic congestion: Right heart failure, may be pulsatile in tricuspid incompetence, hepatic vein thrombosis. **Infective:** Glandular fever, hepatitis viruses, malaria, amoebic abscess, hydatid cyst. **Malignant:** Metastatic or primary (usually squamous hepatomegaly), myeloma, leukaemia, lymphoma. **Other:** Sickle-cell disease, other haemolytic anaemias, porphyria, myeloproliferative disorders (eg myelofibrosis), storage disorders (eg amyloidosis, Gaucher's disease), early cirrhosis, or fatty infiltration. For causes of hepatomegaly.

Hyperventilation

Overbreathing that may be either fast (Tachypnoea i.e. >20 breaths/min). Hyperventilation may not be perceived by the patient (unlike dyspnoea), and is usually excessive in that it produces a respiratory alkalosis. This may be appropriate (Kussmaul respiration) or inappropriate: the latter results in palpitations, dizziness, faintness, tinnitus, chest pains, perioral, and peripheral tingling (plasma Ca²⁺). The commonest cause for hyperventilation is anxiety. Others include fever and brainstem lesions.

Kussmaul respiration is deep, sighing breathing that is principally seen in metabolic acidosis, diabetic ketoacidosis and uremia.

Neurogenic hyperventilation is produced by pontine lesions.

Itching (pruritus)

Is common and, if chronic, most unpleasant.

- | | |
|--------------------------|---|
| Local causes | Systemic (see FBC, ESR, ferritin, LFT, U&E, TFT) |
| Eczema | Atopy |
| Scabies | Urticaria |
| Lichen planus | Liver disease (bile salts) |
| Dermatitis herpetiformis | Old age |
| | Pregnancy |
| | Chronic renal failure |
| | Drug reactions |
| | Lymphomas |
| | Iron deficiency |
| | Polycythaemia |
| | Thyroid disease |

Questions: Is there itch with weals (urticaria), is itching worse at night and are others affected (scabies, what provokes it)? After a bath, polycythaemia or aquagenic urticaria. Exposure, eg to animals (atopy) or fibre glass (irritant eczema)? Look for local causes: scabies, lice on hair shafts, knee and elbow blisters (dermatitis herpetiformis). Systemic: splenomegaly, nodes, jaundice, or flushed face or thyroid hyperplasia. Treat primary diseases: try soothing bland emollients, eg E45 + emollient bath. Treat primary diseases: try soothing bland emollients, eg E45 + emollient bath. Treat primary diseases: try soothing bland emollients, eg E45 + emollient bath.

Left iliac fossa pain

Causes: Diverticulitis; ureteric colic; UTI; diverticulitis; tortured ovarian cyst; salpingitis; acute: Gastroenteritis; pelvic abscess; cancer in undescended testis. **Chronic/subacute:** Constipation; volvulus; pelvic abscess; cancer in undescended testis. **Chronic/subacute:** Constipation; irritative bowel syndrome; colon cancer; inflammatory bowel disease; hip pathology.

Left upper quadrant pain

Causes: Large kidney or spleen; gastric or colonic (splenic flexure) cancer; pneumonia; subphrenic or perinephric abscess; renal colic; pyelonephritis; splenic rupture.

Oedema

Causes: Venous pressure (eg DVT or right-heart failure) or lowered intravascular oncotic pressure (plasma proteins) eg cirrhosis, nephrosis, malnutrition, or protein-losing enteropathy: here water moves down the osmotic gradient into the interstitium to dilute the solutes there. On standing, venous pressure at the ankle rises due to the height of blood column from the heart (~100 mmHg). This is short-lived if leg movement pumps blood through the veins; but if venous pressure rises, or valves fail, capillary pressure rises, fluid is forced out (oedema). PCV rises locally, and microvascular stasis occurs. **Pitting oedema:** non-pitting oedema (i.e. non-indentible) poor lymphatic drainage (lymphoedema), or primary (Milroy's syndrome) or secondary (radiotherapy, malignant infiltration, infection, filariasis). The mechanism is complex.

Oliguria

Is defined as a urine output of < 400 mL/24h. This occurs in extreme dehydration, severe cardiac failure, urethral or bilateral ureteric obstruction, acute and chronic renal failure.

Orthopnoea (see page 429)

Pallor

Is a non-specific sign and may be racial or familial. Pathology suggested by pallor includes anaemia, shock, Stokes-Adams attack, vasovagal faint, myxoedema, hypopituitarism, and albinism.

Palmar erythema

Causes: pregnancy; polycythaemia; cirrhosis.

Pelvic pain

Causes: UTI; urine retention; bladder stones; menses; labour; pregnancy; endometriosis; salpingitis; endometriosis; ovarian cyst (eg torped). Cancer of: rectum, colon, ovary, cervix, bladder.

Polyuria (see page 248)

Prostatism (see page 262)

Pruritus (see itching above)

Rectal bleeding (see page 115, 627)

Regurgitation

Gastric and oesophageal contents are regurgitated effortlessly into the mouth without contraction of abdominal muscles and diaphragm (so distinguishing it from true vomiting). Regurgitation is rarely preceded by nausea, and when due to gastro-oesophageal reflux, it is often associated with heartburn. An oesophageal pouch may cause regurgitation. Very high GI obstructions (eg gastric volvulus) cause non-productive retching rather than true regurgitation.

Skin discolouration

Generalized hyperpigmentation due at least in part to melanin, may be genetic, or due to radiation, Addison's, chronic renal failure, pregnancy, oral contraceptive pill, any chronic wasting (eg TB, carcinoma), malabsorption, biliary cirrhosis, haemochromatosis, chlorpromazine, or busulfan. Hyperpigmentation due to other causes occurs in jaundice, carotenaemia, and gold therapy.

Stridor

Is an inspiratory sound due to partial obstruction of the upper airways. That obstruction may be due to something within the lumen (eg foreign body, tumour, bilateral vocal cord palsy), within the wall (eg oedema from anaphylaxis, laryngospasm, tumour, croup, acute epiglottitis), or extrinsic (eg goitre, lymphadenopathy). It is a medical (or surgical) emergency if the airway is compromised.

Surgical emphysema

Also known as subcutaneous emphysema, this is a crackling sensation felt on palpating the skin over the chest or neck, caused by air tracking from the lungs eg due to a pneumothorax. It may rarely occur due to a pneumomediastinum eg following oesophageal rupture.

Scope (see page 431)

Tenesmus

This is a sensation felt in the rectum of incomplete emptying following defecation as if there was something else left behind, which cannot be passed. It is very common in the irritable bowel syndrome, but can be caused by a tumour.

Terminal dribbling (see page 247)

Tremor

Is rhythmic oscillation of limbs, trunk, head, or tongue. **3 types:**
 Resting tremor: worst at rest; feature of parkinsonism, but the tremor is more resistant to treatment (frequency: 3-5 Hz).
 Action tremor: worst on action; usually a slow tremor (frequency: 8-12 Hz).
 Postural tremor: worse on posture; usually a rapid tremor (frequency: 8-12 Hz).
 May be exaggerated physiological tremor (eg anxiety, thyrotoxicosis, alcohol, drugs), metabolic (eg hepatic encephalopathy, CO₂ retention), due to brain damage (eg Wilson's disease, syphilis) or benign essential tremor (BET). This is usually a familial (autosomal dominant) tremor of arms and head persisting at any age. It is suppressed by large-ish amounts of alcohol. Rarely progressive.
 Propranolol (60-80 mg 8-12h PO) helps.

Intention tremor: worst during movement and occurs in cerebellar disease (eg in MS). No effective drug has been found.

Urinary frequency (see page 246)

Vaginal discharge (see page 518)

Visual loss

Get ophthalmic help. It's sudden, ask:

Is the eye painful/red (glaucoma, mites)? Optic neuritis may be painful.

What is each eye's acuity? Is there a central scotoma (eg infection)?

History of trauma, migraine, TIA, MS, or diabetes; what is the blood sugar?

Any flashes/flutters (TIA, migraine, retinal artery occlusion, detachment)?

Any floaters (TIA, migraine, retinal artery occlusion, detachment)?

Is there a visual field problem (hemianopia (stroke, space-occupying lesion, glaucoma)? Formal field testing requires optician help.

Any heart disease/heart failure? Measure it lying and standing.

Is the BP raised or lowered? Measure it lying and standing.

Are there focal CNS signs? Is there an afferent pupil defect?

Are there temporal arteritis signs? ESR, giant cell arteritis: urgent steroids.

Any distant signs: HIV (causes retinitis), SLE, sarcoid, Behcet's disease, etc.?

Voice and disturbance of speech

May be noted by the patient or the doctor. Assess if difficulty is with articulation (dysarthria, eg from muscle problems), or of word command (dysphasia, always central).

Vomiting

Causes of nausea/vomiting include:

	CNS	Metabolic/Endocrine	Drugs:
Gastrointestinal		Uraemia	Alcohol
Gastroenteritis	Meningitis/encephalitis	Hypercalcaemia	Antibiotics
Peptic ulceration	Migraine	Hyponatraemia	Cytotoxics
Pyloric stenosis	Increased intracranial pressure	Pregnancy	digoxin
Intestinal obstruction	Brainstem lesions		opiates
Paralytic ileus	Motion sickness		
Acute cholecystitis	Meniere's disease	Diabetic	
Acute pancreatitis	Labyrinthitis	ketoacidosis	
		Addison's disease	
Others:			
UTI	Myocardial infarction		
self-induced	psychogenic		
bulimia nervosa	Autonomic neuropathy		

Non-gastrointestinal causes of vomiting

Never forget these, as they can be a sign of serious disease. The following aide-memoire

- * Acute renal failure/Addison's disease
- * Brain (eg 1st ICP, p816)
- * Cardiac (myocardial infarct)
- * Diabetic ketoacidosis
- * Ears (eg labyrinthitis, Meniere's disease)
- * Foreign substances (alcohol, drugs eg opiates)
- * Gravidity (eg hyperemesis gravidarum)
- * Hypercalcaemia/Hyponatraemia
- * Infection (eg UTI, meningitis)

Weight loss

- * Is a feature of chronic disease and depression, also of malnutrition, chronic infections, and infestations (eg TB, HIV/enteropathic AIDS), malignancy, diabetes mellitus, and hyperthyroidism (typically in the presence of increased appetite). Severe generalized muscle wasting is also seen as part of a number of degenerative neurological and muscle diseases and in cardiac failure (cardiac cachexia), although in the latter, right heart failure may not make weight loss a major complaint. Do not forget anorexia nervosa as a possible underlying cause of weight loss.
- * Focus on treatable causes, eg diabetes is easy to diagnose, TB can be very hard. For example, the CXR may look like cancer, so you may forget to send bronchoscopy samples for ZN stain and TB culture (to the detriment not just of the patient, but to the entire ward).

Wheeze (see page 47)**Xanthomata**

These are localized deposits of fat under the skin surface, commonly occurring over joints, tendons, hands, and feet. They are a sign of hyperlipidaemia. Xanthelasma palpebrae is a xanthoma on the eyelid.

References: *Oxford handbook of clinical medicine* 7th ed. p 65-88